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III. *An Account of several Observables in Lincolnshire, not taken Notice of in Camden, or any other Author, by Mr. Christopher Merret, Surveyor of the Port of Boston.*

THAT part of the County of *Lincoln*, that lyeth towards the Sea, is a Level about Fifty Miles long, *viz.* from *Grimsbye* to *Crowland*; and broad from the Sea to the *Wolds* (or High-Lands) 10. It may be divided 1st into Marshes, extending from *Grimsbye* to about *Wainfleet*, in which are a great Stock of large Sheep, which yield a very lusty Wool or of a large Staple (as here phrased) three or four Fleeces usually making a Tod of Twenty eight Pound. Several Hundred Loads are yearly carryed out of it into *Norfolk*, *Suffolk*, the North and West Countries, in great Packs (called Pockets) of about 2500 *l.* weight, and there Manufactured. 2. Fens, the East *Begins* about *Wainfleet*, and ends at *Sibbye*, yielding a great plenty and variety of Fowl and Fish, particularly Duck, Mallard, and Teal, which are usually taken in Decoys; there are three at *Wainfleet*, two belonging to Sir *Robert Barkham*, Knight and Baronet, and the third to my Kinsman *Robert Archer*, Esq; my very good Friends: They are twice Weekly, between *Michaemas* and our *Lady-day* sent to *London* on Horse-back; many times Forty or Fifty Dozen at once, besides what others afford; the Decoy-men Contract for them all at a certain Rate *per* Dozen, which the Carryers (Kedgers) are obliged to take off their Hands; two Teal are reckoned equal to a Duck; so Six Ducks and Twelve Teal are accounted a Dozen, which usually cost here about Nine Shillings. About Midsummer (when

Moultering time is) several Persons, some for Pleasure, others for Profit, go in small Boats among the Reeds, and with long Poles knock them down, they not being able to Swim or Fly from them. A little before *Michaelmas*, great Flights arrive in these parts, which soon grow Fat; when the Decoys are Frozen (which they keep open as long as possible, by breaking them) the Fowl resort to the Sea for their Food. As for Fish there are great quantities, especially Pike, some being of a very large Size: 'tis deep in some places, Eight, Nine, or Ten Foot. The other Fens abound no less with Quadupeds, as Beasts, Sheep especially (which will grow Fat) and Horses. These Fens are common, so that each Town hath a distinct Brand, and also each Man: There are several Fen-Riders, which look after them. The Cattel, when used some small time in a piece of Ground, seldom leave it; so that each individual Person, may easily find his own Goods in such a large Tract. Through these Fens run great Cuts or Dreyns, in which are a great many Fish: There are also vast numbers of Geese which live on the Grass, but both taste rank and muddy; the latter may be smelt as soon as one comes into the Room where Roasting; But they make an amends in the vast quantities of Feathers, and Quills they yield; there having been Three hundred Bags, each weighing One hundred and half, Exported from *Boston* in one Year, as appears by the Custom-House-Books. 'Twill be thought strange (tho' very true) that the Owners pull them four, five, nay some six times a Year for their Feathers, and thrice for their Quills; each Pulling comes to Two Pence. Some Persons have a Thousand, and some more; they are kept at little or no Charge, except in deep Snowy Weather, when they feed them with Corn. Between *Spalding* and *Crowland* grow very great Crops of Oats (in seasonable

seasonable Years) which supply the King's Surveyor, and also large quantities of *Rapum Sylv.* (called *Coal-seed*) whereof they make Oyl, by breaking it between two great black Marble Stones of near a Tun Weight, one standing Perpendicularly on the other (they come out of *Germany*) in Mills, called *Oyl-Mills*; some go with Sails, and serve also to Dreyn the Fens, and are called *Engines*, being of good use, and discharge great quantities of Water.

These Fens lying low, being of great extent, and receiving vast quantities of Water from the high Country, makes them subject to Overflowing; and although there be great Cost and Skill used to keep them dry, yet are sometime like a Sea; Sheep having been brought out in Boats, and the Inhabitants supplied in their upper Rooms with Provisions by them. To Drein them there are great Cuts of Twenty, Thirty, and Forty Foot wide, running through them; most of them made by a Body of Men called *Undertakers*; they also made very large Sluices, they being to have one third of the Ground; also Built a great many Houses, &c. intending to inclose them. But about the Year 1642. a great Number of People got together at a Foot-ball playing, and pretending the Houses stood in their way, levelled them, the Country having since dammed up their Sluices, and built new ones, many running into the River *Witham* near *Boston*; The Sea, and other Places, by several Sluices (called *Goats* and *Clows*) some cost near 2000 *l.* and although made with great Skill and Strength, yet are subject to be blown up, by the vast quantities and force of Water that lyeth upon them (especially when Overflown) some have two or more pair of Doors, of six, Eight, or Ten Foot high, which shut, when the Water in the River is higher then in the Dreins, by the weight and force thereof, and so

è contra, running sometimes, a Body of Eight Foot Square, for about Six or Seven Hours, during the Ebb. The use of these Dreins and Sluices is visible; the Fens since Mr. *Camden's* time being grown firm Land; and the Proverb of all the Carts that come to *Ground* are shod with Silver, is now obsolete; most of those Ponds wherein such quantities of Fowl were formerly taken (which they called their Corn-Fields) being now Prophetically turned into such, yielding great Crops of Oats and Coal-Seed, and Stilts are now grown out of Fashion: also in the rest of *Holland*, you shall seldom find any Quave-mires, or Quick-sands, as our Author mentions; yet for all this, many still continue the old custom to work their Horses unshod

3dly, Pasture-Ground lying between the Sea and these Fens they are very Fertile, feeding a great Number of Fat Oxen and Sheep, which Weekly are sent to *London* in Drovers; their Wool, both to Plenty and Goodness, much like to the Marshes: Tallow here is in good Plenty, which supplieth *London* and other places. Here each Town hath an Outfal by Dreins and Goats to keep them dry.

Near unto the Fens stands *Boston*, now not so remarkable for Trade, but for the Church Steeple and River, may compare (probably) with any Private Parish in *England*. The Church looks like a beautiful Princess among a Company of fair Ladies, no County yielding fairer Churches; and what is more observable, not a Stone fit for Building in all this Tract. The Church is very Lofty, and Cealed with *Irish* Oak, neatly Wrought; the body is One hundred Foot wide; the Steeple is a Tower of Two hundred eighty five Foot high, Octangular towards the top; of curious Stone Carved Work, standing not above Twelve Yards from the River *Witham*; 'tis but Thirty two Foot wide and
but

but Forty long; at each Angle is a large Butterss, the Stones of the sides between them, are but Seven Inches thick, so that this stately curious Building seems to be supported by them; it much resembles St. Mary's at *Antwerp* (only wanting the hollow Crown-work and Weather-Cock, on top of all) of which the Inhabitants Report *Charles V.* the Emperor should say, it ought to have a Case, and only be shewn on Holy-days. Records mention the Foundation to be laid nine Foot below the bottom of the River; the length of the Church is equal to the Steeple's height. The Pillars (which are very neat and small for their height) Windows and Stairs are equal to the Months, Weeks, and Days in a Year; from the top of it *Lincoln* and *Lyn* may be seen, as also Ships Sailing in the Seas at a great distance; 'tis a great Land-mark, and may be seen above Forty Miles at Sea; the River is remarkable for good Pike, according to the old Rhime:

An *Ankham* Eel, and a *Witham* Pike,
All *England* cannot shew the like.

As also for the Rapidness of its Stream; of late there are Eagers, sometimes endangering Shipping, without great Care, which much destroy its Banks and Keys, tho' Fortified with great Piles and Jetties, &c. so that neither Town nor Country, can scarcely keep it within its Banks, it often breaking and over-topping them, which in time is like to ruine the Town, except assisted by Parliament, or by raking in of the Fen, which might make it Flourish again, it being as Rich in Soil as any Ground probably in *England*. But what is most remarkable (and what probably may be thought incredible) that some Years Forty or Fifty (to my own Knowledge) but it hath been averred to me, One hundred
Ton

Ton of Oyl hath been made of a small Fish, called in *Latin Pungitius*, here *Stickle-back*, elsewhere *Prickling* or *Banstead*, having small Prickles on its Back, whence most of its Names, thereby scaring Fish out of our River, especially Smelts, of which we have good plenty and large. They are not above an Inch and half long, and about half as broad, taken in this River above the Town, for about Five or Six Miles; about a Bushel are taken at a Draught, and sometimes about eight Chalder will make a Hogshead. They Boil by Night what were taken by Day, else the Oyl will run of itself, and to waste. 'Twas Comical to see the surprize some *Frenchmen* (who were forced in by Distress) were in, upon their disappointment, of having Oyl, instead of a curious Dish of Fish, when they Fryed them; of their Production the best.

Our Marshes doubtless were gained from the Sea, there being near them at *Wainfleet*, such Banks and Salt-hills, as *Camden* mentions at *Suttern*. They are fenced either by large Dikes, filled with fresh Water in the Winter, and Salt in the Summer, by letting it in at their Sluices, or Stolps and Rails, the former being Oak split, and Sawed into peices, about Six Foot long; the latter Deals, Sawed in the midst length ways. which are put through the former in Mortices.

The Sea looseth and gaineth considerably in this County, for, about *Holbeach*, *Sutton*, and *Wainfleet*, great Marshes have lately been taken in; but Northward of *Ingold-Meals*, it hath lost much more. I have seen the Roots of Trees, that have been Dug out of the Sands at low Water, near a Mile from the Shore, which I take to belong to Fir, the Bark smelling Aromatically, and somewhat like that of Fir-Timber in Piles, that have been long in Salt-water, but not near so strong; and at *Mawplethorp*, they are often in danger of being
Drowned,

Drowned, their Defence being only Banks or Hills of a small Sand, called *Meals*, the former Church having been devoured by it.

What is farther observable among Animals, is, *First*, of *Quadrupleds*; the Country People gather up the Dung of Oxen and Cows, which they temper with Water, and spread on the Ground about Five Inches thick, and cut it out in oblong pieces of about a Foot, and call them Dithes, which they use for Fuel (but they smell strong) in some places they make Walls of them for Fencing. I have been credibly informed, that one Persons Inventory of them came to 400 *l*. They also gather up Hogs-dung and steep it in Water, and having well stirred it, strain it, and so use it to wash Cloaths, which, when bleached in the Summer, will become white and sweet; hence the Proverb, *Lincolnshire, Where the Hogs sh— Soap, and the Cow sh— Fire.*

There are a very great Number of Colts bred in the Fens, they turning all Mares fit for little or nouse therein, for Breeding, costing them nothing; when about two or three years Old they are brought up, and carried into *Yorkshire* and other Counties.

Besides Fowl mentioned by Mr. *Camden* of *Mud-Suchers* (which are esteemed the best) we have *Ruff* and *Rue*, the former being the Cock, the other the Hen, in Latin *Aves Pugnaces*, because you shall seldom look on them but they are Fighting; among One hundred, rarely two are of a Colour, they are usually mewed, they are scarce and dear, usually bespoke by Persons of Quality. Here are also, almost through the whole Level, Swans in their Dreins, which they often Feed for Presents with Oats, each requiring two Strike, *i. e.* Gallons, here reputed but a Bushel.

For Fish, here are *Turbuts* in good plenty (here called *Brets*) taken in Nets trailed on the Ground by two Horses, one goeth Mid-rib deep into the Sea; the other near the Shoar; here are also good plenty of large Soals, taken in Troul-Nets, the Smacks being under Sail trailing them along; as also good store of Scate, which are taken by Hocks lying near the Shoars, as are also Cod and Thornback.

Amongst Insects Gnats, here Midges are in some places very troublesome; some have Nets, some made of Silk to secure them from being bitten, and disturbing their Rest. Frogs here are in great plenty, called *Holland Waites*. As for Vegetables, great quantities of Hemp is Sown in several places, of which Roaps are made, both for Sea and Land; the Female is called *Femle*; as also Flax: The Seed is broken and Oyl made thereof, as of Coal-seed; our Salt Marshes yield a great deal of *Kali Geniculacum*. which, when picked, is their Samphire, and very plentifully used, and far esteemed by them before *Crickmum Marinum*. *Carum* grows plentifully in our Pastures; the Seed they call *Saxifrage*, which they gather and send to *London Myrtus Brabantica* called *Gall*, is used in some places to Garnish their Chimneys; *Kirton* Pippins are here good, and in very good plenty. More rare Plants are *Rhamnus salicis fol. fructu flavescente* C B. *Limonium*.

Scordium Petasties Litium convul. Eryngium, Altha, in great plenty; *Sambucus vulg. baccis vulg. baccis in Umbellis albis, Militaris Azoides*.

These parts afford but little variety of Metals, Gums, or Stones, Amber is pickt up sometimes on the Sands in pretty big pieces, I have had one weighing near Six Ounces. The *Astroites*, mentioned by our Author to be found at *Belvoir Castle*, will not only stir in Vinegar, but also Dulcifie it, the like will those do, as also *Lapis Judaicus*

Judaicus first found in *England*, by my Kinsman Mr. *Robert Jenner*, Rector of *Lyddiard Milliscent Wilts*, in a Park belonging to Sir *Walter*; *St. John's* near unto him. And that quality of Sweetning is more certain then that of Preserving from danger in Battle, probable. Here Cool are Charred and then called *Couk*, wherewith they dry Malt, giving little Colour or Taste to the Drink made therewith. On the Sands the poor People sweep together a black small Substance (I suppose 'tis Coals broken) wherewith they make Fires, by leaving open a Hole in their Chimnies, for the Air to blow it; they have one on each side, to open and shut as the Wind fits.

What I have further to observe, is, That *Agues* (here called *Holland Baylies*) are very rife, few Strangers escaping without a seasoning. As also, that at *Spalding* there is lately a vast Tunnel, laid under the River *Welland*, carrying another under it, for Dreining the Fens. And that between *Dunnington* and *Brigg-end*, which is about three Miles, a good Causeway is carried through the Fen, having in several Places Bridges for the Water to run under them, whence the name of *Brigg-end Causeway*. 'Tis after great Rains under Water, and Passengers take Guides, the Bridges directing them; it was built at the Countries Charge, who also Purchased near One hundred Pounds *per Annum* to maintain it, now under the Care of the Family of the *Shuttlewoods*. 'Tis farther observable, that there is a great many Hills thrown up called *Burrows*, mentioned by Sir *Tho. Brown* in his *Miscellaneous Tracts*, supposed to be Sepulchral Monuments: But I cannot learn any have had that Curiosity, as Mr. *Tho. Diggs*, to open them, to see by what People made; viz. *Roman*, *Saxon*, or *Dane*.

Having done with the Land, one word of the Sea. Our great Bay Mr. *Camden* calls *Washes*, whereas they are only two small Arms of the Sea, runing into it, viz. *Fosdike* and *Croß-keys*; 'tis full of Sands, making two Channels to *Lyn*, and as many to *Boston*, a Chart whereof is now Publishing (from my Survey, taken about three Years since, which Captain *Collins* designed to have added to his *Great Britains Coasting Pilot*) by the ingenious Mr. *Richard Bell*, Alderman of *Lyn*; he having formerly drawn several Prospects of the Town, and several publick Edifices thereof, with his own hand, and all at his own Charge; we hope it may be of Publick use; for when Shipping come into the Bay, between the *Spurn* and *Winterton*, they can hardly claw it off (as Sea men phrase it) with Northerly and Easterly Winds, and so must come on the Norfolk Coast, or among our Sands, Two hundred Sail having not long since Perished at once, upon, and among them, for want of Knowledge in our Channels, several then saving themselves therein. And it may be useful to Travellers, to have a Table when to pass over the said *Washes*, tho' without a Guide I would not advise them, especially after great Freshes, which make the Sands Shift, and consequently Quick, and Horses many times stick fast; the way to get them out, is, by several Peoples trampling round them at a distance, which by degrees raiseth them.

Some Years great quantities of *Acus Major* come into our Haven, and they say the fresh Water blinds them, and that they portend hard Winters; we have had of them this Year: They run their Beaks into our Oufy Shoar, where the Tide leaves them, and so are taken up in great quantities; they are said to eat like Mackarel; their Palate is ruled by the Eye, they looking like them.

them. Our Fen Geese, when taken up and Fed with Corn, become as good as others. After the pressing out the Oyl from the Coal-Seed, the remainder is called Cakes, which here they heat Ovens with, and burn for Fewel (but smell strong) we Export them to *Holland*, where they feed their Kine with them, which doubtless must yield Milk, &c. *Q.* if sweet tasted.

About Five or Six Miles above this Town when the Fens are drowned, they cut the River Bank for about Thirty Yards, discharging vast quantities of Water which keeps back the Flood.

Sir, There were several other Observations, which might have been added to that piece ; but being above my Level, and beyond my Survey, and not so proper for this Discourse, I here omit.

IV. *A Letter from Mr. Stephen Gray, giving a further Account of his Water Microscope.*

S I R,

MY Experiments and Observations Microscopical, having been thought worthy to be incerted in your Philosophical Transactions, I presume the Additions and Improvement I have now made to the Water Microscope may be no less acceptable, I therefore herein send you its Description and Use according to my last Contrivance whereby it not only renders Objects more distinct, but is much more Commodious for Observation.

It consists of Five parts or pieces of Brass, whose Form and Combination is according to my rude Draught, Expressed by the annexed Figure *Fig .2. A. B.* I call
the